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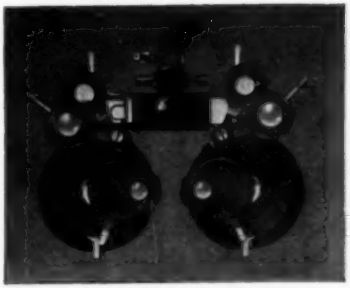

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Synthetic Enamels . . . Spraying and Patching

by
George Arnold Endom

This article started out to be entirely on the subject of synthetic enamel, but I found an opportunity to include some suggestions on spraying pressures (a subject many readers seem vague about) which seem to me to be one of the biggest factors entering into the successful application of the new finishes.

Let us all wish for more and finer finishes to be applied—which will brighten things all along the line during 1936.

George Arnold Endom

IT WAS in the fall of 1931 that I first used synthetic enamels on standard production work. Previously, I had run some tests on samples submitted by several manufacturers and finally selected one that seemed to combine the necessary requirements of adhesion, elasticity, durability and appearance. Note that appearance was the last consideration, for at that time I was engaged on large Army airplanes. I was seeking a quick-drying hard finish enamel for touch-up purposes only, on small fittings. I was not greatly concerned about orange peel or other faults detrimental to refined finishing. If the colors matched; if the material had a fair mechanical gloss and was durable; and, if it dried dust free in a shorter space of time than the specification oil enamel I was required to use on the major portion of my work, I would be satisfied.

The synthetic enamel finally submitted and found satisfactory was used with considerable success. Recently I had the opportunity of noting that after nearly five years of service under wide temperature changes and severe vibration stress, some of the parts coated with this finish were still in remarkably good condition.

Quick Material for Refinishing

This same synthetic enamel was being used by a refinishing shop in New Jersey on automobiles, up to a year ago, and while I cannot recommend this hasty method of refinishing, I must admit this shop was doing business in volume and at a fair profit, although their prices were at starvation rates.

This refinisher's method was to wash the body with gasoline to

remove the polish and wax, and then spray on one heavy coat of a sealing surfacer manufactured by the same firm that made the synthetic enamel. After a light dry sand, this finisher then sprayed on two coats of synthetic enamel, allowing an interval of approximately one-half hour between coats. If a 2-tone job was wanted, the second color was sprayed the following day (masking the first color, of course) and this refinish job was then ready for striping. The final coat was not rubbed out nor polished, as the enamel had such a high mechanical gloss that most customers liked it better than a rubbed and waxed finish. There are many who cannot appreciate the refinements of the latter finish.

Now, I have not related the above because I am interested in cheap automobile refinishing, for I am of the opinion that if a car is worth repainting at all, it should be an A-1 job and should be done at a price commensurate with the investment involved. If it has depreciated in value to the extent of not allowing for a good refinish job, the owner had better buy a brush and can of paint, and repaint it himself.

Some Causes of Orange-Peel

The point I wish to emphasize is that this synthetic enamel covers mars and defects in the old finish partly by build (filling) and partly by an illusion created by its gloss. This makes synthetic enamel a far better product for refinishing than pyroxylin lacquer. Any slight orange peel, pigment or dirt specks, if adversely commented upon, are attributed to flaws in the original finish. But when new work is coated with synthetic finishes, the finisher can not use any of these alibis; he had to turn out uniformly satisfactory finishes.

One of the greatest troubles to overcome in most of the earlier synthetic enamels was to eliminate excessive orange peel or pebbly finish. Some of the reasons for this lay in the coating material itself; much of the trouble lay in poor atomization, improper spray heads and, in many cases, wrong thinning agents.

The two manufacturers of the synthetic enamels I am using in considerable volume have products which are fairly free from any inherent tendency toward rough appearance, namely, orange peel, poor flowing, or specked finish. But in many instances I have had to isolate the reason of one or two or all three of these headaches making their appearance seemingly without cause.

At first, the various manufacturers recommended that only their special reducer or thinner be used with their synthetic enamels. Others allowed the use of pure turpentine, toluene and similar thinning materials, but would not guarantee their product unless their special reducer was used as a thinner.

In using turpentine, many finishers attempted to use a low grade, some even attempting to use sub-turps or V.M.P. naphtha which many times resulted in finish coats resembling sandpaper. And I have had some weird concoctions develop in trying to lower the cost of mixtures by using lower cost thinners, or in trying to speed up the drying time —not for standard practice, but to use in an emergency. For in aircraft finishing, no matter how

quickly a coating material may dry, there is always some part that is needed in a shorter time.

I now use regularly pure turpentine, toluene or small percentages of a good pyroxylin thinner (depending on which manufacturer's product I happen to be using) and get excellent results. But the use of proper thinners alone does not solve all the difficulties of applying synthetic enamel.

One Method of Spraying Synthetics

The majority of sprayers have to learn the approximate proper distance to hold the spray gun from their work. Also, not to attempt to apply finish coats until they obtain proper atomization of a correctly reduced mixture; then to trim all edges; after which to swiftly apply a full-flowing coat to the surface almost to the point of sagging, but not quite reaching that stage.

Air-drying this coat in a clean atmosphere (not too warm, for many synthetics will wrinkle at edges if the temperature is too high) will result in an appearance of baked enamel and in many instances have sufficient covering and protection to pass with one coat. I believe this quick, skillfully applied method of flow-spraying is much superior for synthetic enamels to the double-header method, that is, a light coat in one direction and after a few seconds, a second wetter coat cross-wise to the first as practiced in pyroxylin lacquer spraying. It eliminates the possibility of dust settling on the first lap, or of orange peel from spray pressure on the partly set coat. Care must be exercised, however, that the flowing coat does not sag or run, but this can be easily avoided by a conscientious skillful sprayer concentrating on his work and being in constant practice.

Air Pressures in Spraying

Regarding the proper pressures at which to spray synthetic enamels, lacquers or, in fact any finish, it is my belief that it is almost impossible to arbitrarily set any air pressure limit—up or down—in spraying. So much depends upon the various factors involved which must be considered:

1) The viscosity of the material and the temperature of the room where the spraying is done.

2) The size and shape of the article to be sprayed. If the article is extremely large, with considerable area and difficult to get around, this fact must be borne in mind: Spraying should be done in a free arm movement if the sprayer is to work to best advantage and most efficiently. A sprayer with a tired arm or back is the one most apt to have "holidays" or uncoated sections, poor laps or even runs. It is only reasonable then to use a lower pressure with consequently more control to enable the sprayer to work a trifle slower on this class of work.

3) Ventilation and compressor capacity are also factors to be considered. If improper exhausting of fumes and dust are conditions which cannot be remedied it would be sheer folly to spray at unduly high pressures, thereby suffering discomfort when a lower pressure with consequently less atomization dust would serve. And a compressor with less cubic feet per minute capacity than normally required for a spray gun using 80-lbs. atomizing pressure can

sometimes render satisfactory service if the gun pressure is lowered to somewhere around 50-lbs.

4) Last, but most important, it must be remembered that all men cannot work at the same speed. Some sprayers can work steadily all day and every day, and turn out first class work at high pressure speeds. Others become worried and miss strokes when guns and pressures are too fast. These latter will contribute as much toward efficient production as their faster co-workers provided they are given spray work suitable to their limitations. All spraying does not require high pressure nor fast application. Indeed there are many operations requiring atomizing pressures below 40-lbs., especially in hard-to-get-at almost inaccessible sections. It would be a waste of time and material to attempt to spray at high pressures on this class of work.

(Part II will appear next month)

Venetian Blinds

THE INCREASING vogue for Venetian blinds has been the motive for several attractive displays at leading department stores of New York City recently. A leading Fifth Avenue store featured lacquer-finished cedar-slat blinds with a worm-gear slat-tilting device, automatic stops and rustproof hardware. The range of 15 standard slat colors and 12 tape colors provides harmonizing features for practically any interior decorations.

Another large store featured Venetian blinds with a cornice top which conceals all hardware and eliminates the light streak above. These blinds have a geared slat-tilting chain device which prevents slipping and insures easy action. The smooth lacquer enamel finish does not chip or crack . . . . Automatic stops and rustproof hardware are cadmium plated. Popular colors are ivory, white and very light green. — BELLE CALDWELL.

Zapon-Brevolite Expands

Mr. Casper Apeland, General Manager of the Zapon-Brevolite Division of the Atlas Powder Co., North Chicago, Ill., announces that:

"We are constructing a new warehouse and addition to our manufacturing plant, and adding new equipment which will call for an expenditure of about $100,000.

"Our business last year ran 60% ahead of 1934.

"Mr. Edmond H. Bucy, who has been with the Zapon-Brevolite Division as technical director, also with predecessor companies, having started with us in 1922, has been made technical director of our associate company, the Zapon Division at Stamford, Conn.

"Mr. Bucy's place in the Zapon-Brevolite organization is taken by Mr. G. R. Watkins, who has been with the organization for about five years.

"Clayton A. Casler, who has been with the company in a sales capacity for several years, has been given the central Illinois and Missouri territory."

Rust-Proof Book

Full color illustrations showing the results of several rust-proofing tests on steel panels and automobile fenders, some untreated, some phosphate coated, and others treated with chromodine to prevent rust, are among the attractive pictures in the interesting and informative book containing 20 pages 8½x11-in., recently prepared and published by the American Chemical Paint Co., Ambler, Pa.

The Development of the Chromodine Process, Why the Chromodine Process Accomplishes Results, Comparative Tests, and the Practical Cromodine Process, are the main section headings in the book. Every concern that uses iron or steel in the manufacture of its products should have a copy.

Color AND Design

IN THE AUTOMOBILE AND OTHER PRODUCTS

by Howard Ketcham
Duco Color Advisory Service

A REVOLUTIONARY development from an ugly luxury to a beautiful necessity, from unbalanced drabness to beautiful symmetry, has taken place in the automobile. To compare the modern models with those of 35 years ago makes one believe in magic.

Two things have effected this change—color and design. Of the two, color has come decidedly to the fore. There is no longer any great change in the design of an automobile because the cumulative effect of mechanical and body changes made in recent years has brought the car to a level of perfection challenging further radical improvement short of resorting to untried principles and weird designs. But since the manufacturer must give the consumer variety if his product is to continue to sell, he has concentrated more and more on the eye-appeal of color.

Experiments with Color

In the early days of colored cars, ornate and complex color arrangements chopped the body into separate sections. Windows were encircled with colored reveals. The car body was patchworked with areas of color. Accessories added to the chaos of color.

For a while fenders remained black. Manufacturers felt that when colored fenders became scuffed they would prove too great a problem in patching after minor traffic dents. In spite of this objection, car owners gradually responded to the appeal of appearance and all fenders were colored to match the balance of the body. Colored plastics were gradually introduced into the hardware. The horn button, the gearshift handle, the instrument panel and the hardware knobs all became colored. Today, even steering wheels in color are standard in several makes of cars.

Too Much Chromium

In searching for novelty, car builders were generous in their display of chromium until, in a survey conducted by one manu-

facturer, it was discovered that the reflection and glare caused by the sun striking the metal radiator and lamps of the car irritated the driver. As a result, radiator and lamps are now colored to match the car and the color area on automobiles has been materially increased.

Car Colors Coordinated

After 1928, the designs and colorings of automobiles became gradually less and less complicated. Top, belt, mouldings, windows, wheels, body — all were matched in one color. By 1929 every automobile builder had in his service a color engineer.

Colors were coordinated, resulting in the elimination of many meaningless and almost invisible variations of hue from the stock offerings of suppliers. Calibrated colors representing a minimum range of practical variations were made available and designated in terms of Munsell notations for convenient reference.

Because the area of color has increased and the number of colors decreased, manufacturers have been concerned in finding the exact variations which looked best on various body styles. The automobile builder, because he did not produce his whole output far in advance of season, as was necessary in the garment and furniture fields, could be guided in his style technique, as production advanced, by the wishes of the consumer.

Sales Influence of Color

While design was crystallizing, color was growing. The industrial use of color is still in the experimental stage, but there is a broadening realization of its possibilities. Retailers and manufacturers alike are learning that color gives an effective silent sales talk of its own.

In cars, as in other lines of merchandise, desire—not necessity —influences most sales. By stressing novelty, style and appearance, the car builder attracts the feminine public which is responsible for so much of the volume in car sales.

Promotion of color in one field of production affects the sale of that color in other fields. Metallic dresses, now in their second year of popularity, are derived from the same aluminum base that is used to produce metallized car colors. Car manufacturers can build upon novel experimentation in other lines. Take for example the advent of seasonal colors. In department stores, blue has been promoted for the last three Christmases. It has finally been made to rank with red as the most popular color next to white, for Christmas accessories. When blue's prestige has passed, merchandisers will promote some other hue for Christmas.

Latest Popular Colors

Browns and beiges of reddish hue and dusty colors of other hues are destined to stand high in popular esteem this spring and summer, according to latest forecasts made by important producers of women's and men's wear and manufacturers of home furnishings. Such colors as dakar brown and taffy beige are expected to develop leadership in this category.

Navy blue, while not a home furnishing color, is ensemble favorite. Intense rich looking navy blue developments such as Corsair (a leader for three years)

and Guardsman (a lighter and brighter navy) are certain to gain again the customary acceptance accorded this hue each spring, according to the Color Coordination Committee of the National Retail Dry Goods Association. The military influence is also noted in a number of the new color names.

The most important colors in the women's wear and home furnishing fields for the coming season include:

Corsair, a dark, rich navy blue;

Guardsman, a lighter and brighter navy blue;

Cadet blue, a greyed blue;

Dakar, a fast selling, medium value, reddish brown, excellent for spring and summer;

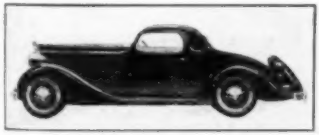
Grege, a neutral type of color midway between grey and beige.

Taffy beige, a warm, light value color;

Saxon, a greyish blue.

Clear, hueful varieties of grey, such as Sylvia, Grenadier, Clam Shell and Saxon are already being promoted.

The new wine brown and rust colors are decidedly redder in hue for spring release. Such variation as Torito Rust and Barbette brown, leather tan, melon (a



warm, rusty coral hue), Saphire (an extremely bright, smart-looking sapphire blue), and greens of slight yellowish hue of somewhat modified intensity on the order of broccoli and artichoke, comprise additional features of importance among the new color offerings that are expected to develop volume leadership for spring. These smart seasonal colors can now be had in leading finishing enamels, enabling car owners to keep pace with that which is most uptodate in color both here and abroad.

License Plate Colors

Nearly every hue of the spectrum has been used for 1936 license plates. A recent AAA survey reveals the fact that 30 states and the District of Columbia have designed entirely new color schemes. The sum total of license plate colors chosen reveals as the most popular grouping the two colors of maximum visibility in the arrangement in which they look best. Black numerals on a bright yellow field are most easily read and are used more than any other color plan.

At the recent Paris Motor Show, five large production manufacturers introduced car designs minus running boards. If this trend becomes more general and car designs undergo further simplification, color treatment will also be modified to a corresponding degree . . . . Interest will be more and more focussed on the fender, at present colored to match the body. The time may not be distant when accent colors will apply to fender areas in place of wheels.

Trend of Car Design and Colors

The time is coming when the automotive field will follow the example of the home furnishing and dress-making industries which have profited for years by the simple and inexpensive expedient of seasonal color. People do demand change and while it is true that these periods of change occur

without any set regularity, the major periods of unrest in this respect can be grouped by yearly shifts in style offerings.

Color changes, unlike design changes, do not involve the use of costly dyes and tools. When this point of regulation arrives, obsolescence will be as much a matter of color as it is of design today. Then all American industries will be coordinated, in keeping with the consumer's taste, along the lines of essential color changes.

Metal Awnings

The new metal awnings featured in New York City are made of narrow sheets of thin material hinged together on their long horizontal edges. When closed the sections fold together at the top of the window. The metal is copper, aluminum or rustless steel . . . . sometimes painted in solid colors or stripes. The under side is usually painted in aluminum in order to reflect maximum of light into a room. Fixtures are of bronze. Awnings of this type may be left up the year around. — BELLE CALDWELL.

Woodfinishing Products Co. Opens Plant at Winston-Salem

James A. Ledwith, president of the Woodfinishing Products Co. of New York, announces the opening of a new plant located at 572 Waughton St., Winston-Salem, N. C. New machinery and equipment were completely installed early in April, and now the plant is in full operation and production. A well equipped laboratory is staffed by experienced men and headed by Joseph C. Ledwith.

Tommy Thomas of High Point N. C., will direct the sales force covering the Southern area. Mr. Thomas, who has been with the company as Southern District Sales Manager for several years, is well known and well liked in the furniture manufacturing industry of the South.

The Woodfinishing Products Co. is well known as manufacturers of shellac and wood finishing materials.

The new plant will manufacture and carry a complete stock of the entire "W. P. C." and "Absolute" line of products for prompt delivery and service to the entire Southern area.

Fire Underwriters' Regulations About Spray Booths

A small booklet of 14 pages 4x6¼-in. called "NBFU Pamphlet No. 33," contains valuable information about the location, installation, operation and maintenance of paint spray booths and their exhaust systems, which should be in the hands of every user of such equipment. The full title of the booklet is "Regulations of the National Board of Fire Underwriters for Paint Spraying and Spray Booths as Recommended by the National Fire Protection Association." Copies are obtainable from the National Board of Fire Underwriters at the following three addresses: 85 John St., New York, N. Y.; 222 W. Adams St., Chicago, Ill.; Merchants Exchange Building, San Francisco, Calif.

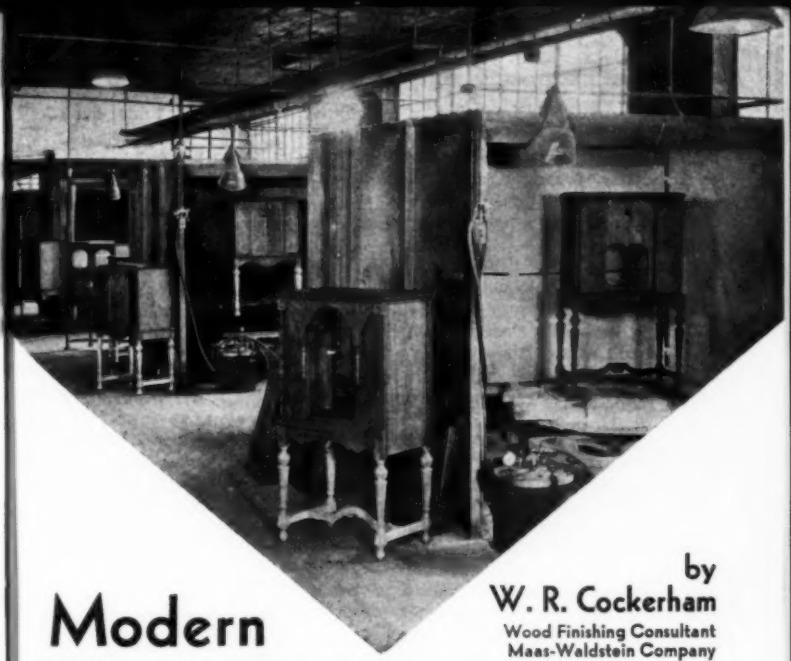
Van Auken-Ragland Move

To provide more spacious facilities, which better meet the requirements of their business and its continuous expansion, Van Auken-Ragland, Inc., advertising agency, will move into larger quarters on May 1st in the Twenty North Wacker Building, known also as the Civic Opera Building, Chicago.

Clients of Van Auken-Ragland will find most unusual service and facilities available in this $20,000,000 building . . . . quickly reached from any part of the business district by taxi, street car or bus. The North Western, the Union Station and L Stations are within five minutes' walk.

Alkali Cleaning Compounds

A 4-page folder just issued by Detroit Rex Products Co., 13002 Hillview Ave., Detroit, Mich., describes applications of "Triad" alkali cleaning compounds. It also points out production economies effected through the use of Detroit-Rex specialized cleaning service.



by
W. R. Cockerham
Wood Finishing Consultant
Maas-Waldstein Company

Modern Wood Finishing « «

An entertaining, interesting and informative article by a man who understands and appreciates foremen finishers' problems, and who knows modern finishing materials. He discusses in detail every operation in the finishing schedule for both close-grained and open-grained hardwoods, for furniture.

■ ■ ■

NEW MATERIALS, new designs, faster production, costs-cutting, labor-saving, line production, and still trying to maintain quality in all workmanship and in the final finish itself—all this boiled down to one word spells h-e-a-d-a-c-h-e for the foreman finisher. We can understand the furniture manufacturer's position. He must cut the cost, save labor wherever he can, save material, speed up production in order to utilize every possible foot of floor space, cut down handling costs—and still he says: "We must maintain our quality." What to do . . . . is the problem, or rather a whole lot of problems, troubles and propositions rolled into one for the foreman finisher.

First, the executive manager calls a conference; gets all the

key men in the organization together — the designer, efficiency man, superintendent, purchasing agent, sales manager and, last but not least, the finishing foreman. Then they proceed to figure out a number of ways to save lumber by cutting this a little shorter, leaving that out altogether, etc.

"Yes," says the designer, "it looks much better this way."

So new designs are born. The millman says, "Oh yes, it is much easier to do this way," so he is happy. Someone suggests that they can even use cheaper lumber in some places. That strikes a sweet sounding note to the boss and he chimes in; so be it, lest some one changes their mind. Everybody is happy. They have already begun to count their profits.

Up to this point the finisher has been an interested onlooker. In fact, the others almost forgot he was present. The salesmanager says with pride:

"Now we are getting somewhere. We will show the John Jones Co. something with snap when we get out this number. Remember how they cornered the market last year with that cheap set they came out with?"

The Finisher Speaks Up

"Yes," says the boss with a sigh, remembering all the orders he lost because of it, but adds, "there is no comparison; this is real furniture," to which every one agrees, and they all laugh heartily. Then the finisher chimes in:

"Pardon me, Mr. Boss, but just how do you intend to finish this set?"

"Oh yes," says the boss, "that is why I had you in on this. I wanted to ask you some questions."

"Well," says the finisher, "if you are gong to use that cheap lumber you spoke of in this part here you are going to have some additional labor toning up. And if you make it this way, you will have to use a 2-tone effect to set it off. And this makes a hand operation necessary. And this little change here shows a lot of end grain; something will have to be done about that. Also, those composition ornaments suggested here will not take the stain like the wood carvings did. And these turned posts will be troublesome. Besides, the veneered stock is very porous and might make an extra filling necessary."

"Wait a minute," says the boss, "I believe you have just about criticized every change so far. If what you say is true maybe we are not saving anything after all."

Into a Huddle Again

So they go into a huddle again, this time consulting the finisher occasionally. Finally they decide to make a number of changes, most of them to the finisher's displeasure; but he takes it on the chin and tries to look pleased. He figures he does not bear as much weight as the designer, or salesmanager, or superintendent who in most cases is a woodworker. And the boss sees a saving, which means the finisher is fighting a lone battle and surrenders, and hopes for the best.

The designer makes the sketch, showing the set in beautiful soft tones, and even the finisher has to admit that it certainly ought to sell. Accordingly samples are made; then to the finishing room.

The finisher, not having much time (aside from running his shop) to figure out just how to meet these new problems, goes ahead and does the best he can to reproduce the harmony of color in the lovely tones the designer has introduced in his sketch. By using all his skill and past experience he succeeds in finishing the samples so that every one agrees they are beautiful. Then the Show .... Orders begin to pour in.

Manufacturer's Representative Called In

By this time the foreman has had a chance to compare costs, figuring the operations in production, and finds that he needs help. He enlists the aid of a representative of the finishing material manufacturer who is always willing to cooperate at any time. But when the problem becomes clear to this obliging representative, he says to himself, "these people are always expecting the impossible," but like the finisher he tries to make the best of the situation. He explores the depths of his own and his company's past experiences and, with the aid of new chemicals, new finishing materials are made to meet the current demands. Then there is cost of materials to figure.

Here's where the purchasing agent gets his worry. Most every salesman that comes into his office has a better story than the man who just left. After a few days or weeks of this, he finally throws up his hands in despair. This one says: "Use varnish." Another says, "No, lacquer is better, and will go almost as far." One says: "Use low-viscosity lacquer; it is better and will go farther." Another says: "Wrong, we have a high-viscosity lacquer that is just as good."

Purchasing Agent's Nightmare

They talk about percentages of solids, coverage per square foot, build, toughness, flexibility, length of life, chalking white, heat resistance, moisture resistance, drying time, the number of coats that can be applied in a day to save space, rubbing, printing, fast-to-light stains, non-grain-raising stains, non-bleeding stains, sealers, shellacs as a sealer. When the poor purchasing agent goes home at night, if he does not dream of these things and talk in his sleep, it is a sure sign he has a strong constitution. So he says to himself, "We can't possibly try all the materials that have been recommended by reliable houses for our purpose."

But the problem of cutting cost in the finishing room still remains, and it falls back on the shoulders of the finishing foreman. He can't take a chance on using a new material that has not been proven in the trade, because it puts too much responsibility on him. If he sticks to the old ones, he is back where he started. We will assume he has already juggled his routine, and saved everything he possibly could, but his finishing cost is still too high.

The Author Offers Suggestions

The writer, having faced most of these problems during his experience in the woodfinishing field, offers for the approval of INDUSTRIAL FINISHING'S readers some suggestions that may prove helpful. Let's start with stains and their requirements. A few years ago the good finisher could not think of anything but water stain. Why? First, because of their per-

manence of color. Second, their concentration, making it possible to obtain deep rich colors with them.

But water stains had disadvantages, such as raising the grain, affecting glue joints and, in some cases, blistering the veneer. The raised grain made a wash coat necessary; also a sanding operation. While the wash coat made it possible to sand off the fuzz and leave a smooth surface, and at the same time seal the stain against bleeding through the finish, it also prevented the filler from getting a proper hold into the surface of the wood. If the shellac were applied a little too heavy, the finish would have a tendency to peel later. Then there was the sanding operation. Care had to be taken that edges and corners were not sanded white. A little too much pressure applied to one spot would lighten the color, which was very difficult to touch up.

Modern Stains and Fillers

Accordingly, the chemist got busy, and found that by dissolving these same dyes in water and high-powered non-grain-raising solvents, he could produce the good qualities of the water stain without the troublesome raising of the wood grain. So, the birth of non-grain-raising water stains, which are still being used successfully.

We also had what was commonly called a filler-stain, which was short lived because of its opaqueness and lack of brilliance, and the finisher's inability to obtain a uniform color where hard and soft woods were used in the same piece of furniture. We will leave stains for a while, and touch on them later on in this article.

Then comes wood filler. Paste wood fillers are more or less standardized and have been for a long time. They are somewhat alike in composition as well as in quality. Most wood fillers are made with oil as a base; however, some have a varnish base. It is difficult to say which of these is best. Personally I prefer the oil-base filler, especially for use under a lacquer sealer, or lacquer compositions of any kind. Varnish-base fillers dry a little faster than the oils, but if the oil is handled properly you can make a fairly fast filler with it. In either case the oil or varnish is only used as a binder for the pigment which is the predominating factor in all paste fillers.

A paste wood filler should not be applied heavily, as is done in a lot of cases. In the first place you waste a lot of material; secondly, the heavier the coat the longer it takes to dry. Quick-drying solvents can be used for thinning a wood filler (and they help to reduce the drying time) without injuring the material.

Facts About Sealers

Now we come to the sealer or first coat which is applied directly over the filled surface. A number of these materials are on the market. We will start with substitute shellac, which is about the cheapest one—and when I say cheap I mean just what the word implies. It is cheap from all viewpoints. Then we have the pure shellacs. When shellac is properly used it makes an excellent sealer, but many finishers abuse shellac by applying it too heavily. This produces bad results later in the life of the finish. Shellac has a strong affinity for water, which makes it very absorbent to mois-

ADVERTISING PAGES REMOVED

ture. In fact, properly handled shellac can be cut with water.

A heavy coating of material which has a high alcoholic or water content, when applied directly over a veneered surface, is sure to cause trouble when the finish begins to age. Most people have the idea that shellac dries quickly. Apparently it does, but it really isn't dry until it begins to get brittle, and since this moisture has to escape somewhere, and it can not penetrate the veneered surface because of the heavy coating of glue, then it comes to the surface of the finish. The pores through which this moisture escapes may be so minute that they are not visible to the eye, but still they are large enough to make the surface of the finish porous, and render it susceptible to more moisture or erosion.

Then we have a newer product, "lacquer sealer." This term covers a lot of territory. Most people are inclined to use what is commonly termed a lacquer sanding sealer, which means that to the lacquer has been added some finely-ground transparent pigment of a very brittle nature to make it sand easily. This pigment helps build up the solids of the material and at the same time renders it more resistant to the following lacquer coat, and it produces what finishers call a good "holdout" for the lacquer. However, in this case the finisher is working against himself when he asks the lacquer manufacturer to give him a lacquer sealer that sands easily. This produces two things that you can not have, and still get a good finish at the same time. When it sands easily, it will become chalky. Any highly-pigmented sealer will have a good "holdout" because the solvents in the following coat of lacquer do not attack it as readily as if it had been built up with most gums that could be used for this purpose, therefore you get less shrinkage. But keep this in mind: Your finish is only as good as your first coat.

My idea of a good lacquer sealer is one that is composed of a small amount of pigment and which has enough binder and elasticity that it will hold to the wood . . . with its composition arranged so that it does not dissolve readily under lacquer, and is low in solids. Of course, this kind of sealer will not sand as easily as the ones heretofore mentioned, but when you are finished it will not chalk white or become brittle like the others. If your surface is properly filled you can depend on your lacquer for the build necessary to produce a smooth finish.

Lacquers for Wood Finishing

When nitrocellulose lacquers were first introduced, I believe they were better than some of those on the market today. Manufacturers had not discovered how to introduce cheap gums to get the build that they have today. The lacquers were made with a high percentage of cotton which gave them a tough and hard finish—but to obtain a full smooth finish with lacquer you had to apply from 10 to 15 coats, which is something present day manufacturing would not permit. But there is a happy medium which some manufacturers of lacquers have discovered and, as a result, finishers can get wonderful results.

It is possible to make a lacquer to fill practically any need. In

making a good building lacquer, it is necessary to introduce gums, but this gum should be of a nature that it will dissolve readily and release the solvents quickly and dry very hard. Its flexibility and toughness can be controlled by other ingredients. To meet modern day needs, a good lacquer must rub easily and polish readily. As to the difference in high-viscosity and low-viscosity lacquers, it is possible to make just as good a lacquer of high-viscosity cotton as is possible with the low-viscosity material, but you can not get as much solids into it at spraying body without it becoming brittle or chalky. In fact, according to various tests that have been run on cotton solutions by testing laboratories, the "high" stood up better than the "low"—but that is neither here nor there. We are concerned more about the use of lacquers than how they are made.

Oil Solution Under Lacquer

The real message that I would like to convey in this article is how to make high-viscosity lacquer with a high-solid content do the work of a low-viscosity lacquer, and get the same coverage per square foot. This little secret lies in a base solution that is on the market at the present time. Originally this solution was developed as a waterproofing material to apply before the lacquer. It not only increased the water resistance of the finish but improved the lacquer itself. In other words, its use permits you to use a cheaper lacquer and get good results. This material has been on trial for over four years, and has proved its value. It is called an "oil solution" by the manufacturer, and is made in colors as well as the clear. By using it under lacquer you are able to obtain a tough elastic finish with a medium grade of lacquer.

The stock colors are red maple, yellow maple, red mahogany, brown mahogany, and walnut. These can be intermixed to produce practically any shade of color. The colors are called "Colored oil solutions." The dye used in this material is as permanent as any stain can be made. It is a dye carried in an oil solution that prevents any raising of the wood grain; it fills the wood at the same time, saving the usual wash-coat. These stains are non-bleeding; they can be sprayed, dipped, brushed or wiped on.

Suggested Finishing Schedule

The finishing routine on close-grained woods is as follows: Apply the oil solution stain; allow to stand about 20 minutes or more; wipe off the surplus with a rag; allow to air-dry overnight, but if you have the facilities to force dry it at a temperature of about 100°F. overnight, it will greatly improve the finish. Or it may be force-dried at a higher temperature, say 150° to 175°F., for from three to four hours. Then apply one coat of a good lacquer sealer; allow this to air-dry from one to two hours; sand with No. 3/0 finishing sandpaper. Then follow with your lacquer coats, allowing about one hour of drying time between coats. One coat of sealer and two coats of lacquer on all close-grained woods are usually sufficient. Allow the last lacquer coat to dry overnight before rubbing. If a varnish is used, it should be ap-

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plied over a coat of lacquer sealer. Do not use shellac; it will not dry over this material.

On walnut, mahogany or any other open-grained wood, where filling is necessary, the oil solution stain may be applied and allowed to stand for 20 minutes or more. Then apply a good fast-drying paste wood filler in the usual manner. After this has been cleaned off, it is necessary to force-dry the filled surface at a low temperature overnight. Then finish in the manner just described. Where filling is done, it is not necessary to wipe off the surplus stain before the filler is applied. This stain is as permanent as any water stain, and will not streak or lap . . . contains ingredients that make it ideal as a lacquer base.

Modern Rubbing; Polishing

Now a few words about rubbing: The old method of using water and pumice stone has long since been forgotten in the larger factories. Some of them are using what is called a "water-oil rubbing solution," which the writer does not recommend, because it has a tendency to gum up or clog the felt surface of the rubbing machine. In the writer's opinion, the best material for rubbing is a paraffin-base rubbing oil, or crude oil. Either of these, used with the proper grade of pumice stone, will produce excellent results.

Rubbing lacquer is a problem slightly different from rubbing varnish. Lacquer, being tougher, usually requires more cutting down than varnish due to the lacquer's tendency to shrink, therefore to obtain quick results, it is better to first go over the surface with a machine, using a fine sandpaper instead of felt and pumice. Then follow with the felt and pumice stone; or you can obtain excellent results with a fine steel-wool after the sanding operation. In either case the writer recommends finishing up or polishing with rubbing compound, such as is used to rub and polish automobiles. There are several of these on the market. They are usually used with water, and serve to clean the surface of all the oil left from the first rubbing, leaving a clean, bright finish.

Protection from Gas Explosions

A new device which protects areas from explosions of inflammable gases was described at a meeting of The American Institute held recently in the auditorium of the Metal Products Exhibits, Rockefeller Center, New York. Mr. Murray D. Smith of the Davis Emergency Equipment Co., in describing the various appliances used for protecting industrial workers from poisonous and explosive gases, demonstrated publicly for the first time an instrument known as the J-W Combustible Gas Alarm which continuously analyzes the air at any desired point and indicates at all times the amount of any inflammable gas that may be present. Should the concentration of the inflammable gas rise so high that the resulting gas-air mixture becomes combustible or explosive, the instrument can sound an alarm and start up ventilating apparatus or other protective equipment.

The Gas Alarm can be installed wherever there is danger. Air from the point to be protected is drawn continuously into the instrument and is exposed to the action of an incandescent filament in an explosion-proof chamber. If an inflammable gas is present, it will burn in contact with the filament. This action raises the temperature of the filament and changes its electrical resistance. This change is indicated on a dial graduated in terms of the explodability of the gas-air mixture, and when any predetermined concentration is reached, electric contacts are closed which put into operation any desired kind of protective equipment.

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for Finishing Advice . . .

Anyone can pick a finish for a given product . . . *but* to select the one best suited to the product — the one that will have the strongest eye appeal, possess the most satisfactory wearing qualities, and cost the least to apply — that is a different matter.

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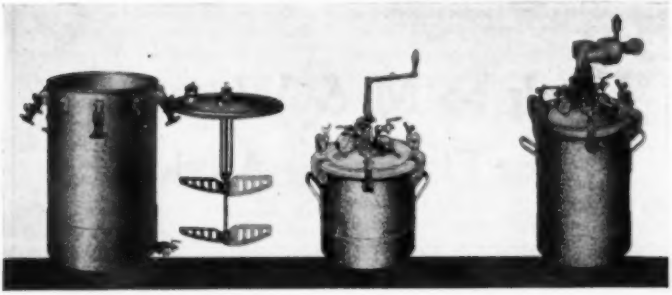

Pressure-feed material containers equipped with agitators for stirring up the contents. The two at the left are for hand-crank stirring, while the one at the right is fitted with an air motor mounted on the lid. From photographs furnished through courtesy of The Binks Manufacturing Co. and The DeVilbiss Co.

When, Where, Why and How to

Agitate Finish Materials while Spraying

STAINS, fillers, paints, enamels, bronze powder finishes and any other finishing materials containing pigment or solid materials that will eventually settle to the bottom of the container, if allowed to stand quietly for a while, require occasional or constant agitation to keep the solid matter in suspension. Various types of agitators or stirrers are available for this purpose.

Usually, what stirs the material in its container is one or more horizontal paddles attached to a vertical or nearly vertical shaft, the paddles turning propeller-like near the bottom of the container while the upper end of the shaft is supported by one or more bearings in or near or attached to the lid of the container. In a tall tank an additional bearing—an outboard bearing—is generally provided near the bottom of the tank to steady the shaft.

The agitator operating inside the container may be turned by a hand crank or by an air motor (taking power from the compressed air line) or by a small individual electric motor. If several containers are permanently aligned in a row, a line of shafting may be used to transmit power to the agitator shafts. In such an arrangement, means are provided for independently connecting and disconnecting the agitator shaft of each container.

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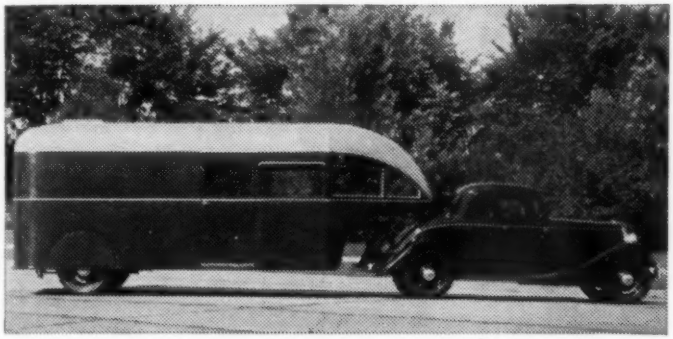

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A pressure tank and its agitator, the latter being driven by an air motor which takes power from the compressed air line. Notice the out-board bearing near the bottom—between the stirring paddles—to steady the long shaft as it revolves.

Tall cylindrical containers with the agitators driven by individual electric motors mounted on top of the covers. The container at the left supports a horizontal motor, while the one on the right has a vertical motor. From photographs supplied by The DeVilbiss Co. and Binks Mfg. Co.

Mechanical equipment such as an air motor, electric motor or a belt-driven agitator obviates the necessity of the spray operator interrupting his work to agitate the materials—or the employment of a man for the purpose of operating the agitator.

The hand-operated agitator is limited to use where the paint or finishing material does not settle too quickly and requires only an occasional stirring. Hand operated agitators are available on pressure-feed tanks ranging in size from 5 to 60 gallons.

The air motor agitator drive is for use where frequent or constant agitation is required, and where an electric motor is not desirable or cannot be used, due to inconvenience or fire hazard or lack of electric current.

The air motor drive is operated by means of the compressed air available at the tank lid. It can be attached or detached instantly by lifting on or off the agitator shaft and connecting or disconnecting the air hose. The speed of the motor is regulated by a valve, and is adjustable. The air consumption of the motor is from 5 to 6-cu.ft. a minute at 20-r.p.m.

The electric motor drive is used for constant and vigorous agitation of materials including those containing heavy pigments. It is available in two types of electric motor. These

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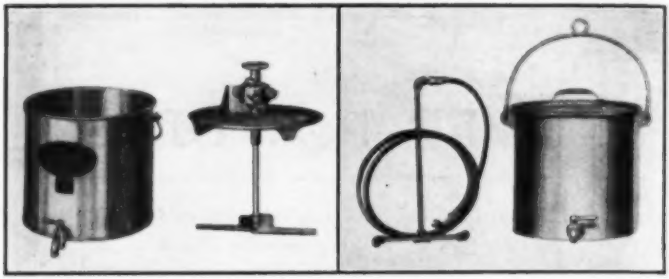

Gravity-feed buckets with agitators removed. The agitator shown at the left is driven by a small air motor attached to the lid. The one at the right consists of an inverted T made of slender pipe. Small holes in the horizontal section release jets of compressed air into the bottom of the tank. This is an air-jet agitator. From photographs furnished by The Spray Engineering Co. and The DeVilbiss Co.

are the "totally enclosed" type for use with porcelain materials, and the "explosion resisting" type for use with paint, lacquer and similar materials.

Designed to be handled as a unit, the electric motor drive is easily and quickly attached to or removed from the tank lid. The unit is available in various sizes for pressure-feed tanks from 5 to 300-gallon capacity.

When it is desired that several agitators on a series of pressure-feed tanks be driven from one common source of power, a multiple gear drive or a belt drive is used.

Some of the older types of suction feed spray guns are supplied with an air agitator tube. This was necessary to provide a uniform mixture in the case of bronzes and heavy pigments.

Gravity-feed material containers, ranging in size from two to 10 gallons, can usually be obtained with either one of two different types of power agitators (as well as hand-operated agitators). In one, a pair of slender stirring paddles is attached to the lower end of the shaft which is rotated by a small air motor positioned on or built into the top of the lid. In the other, called an "air jet agitator," there is an inverted T-assembly of slender pipe that hangs from the container cover. Small holes drilled in the horizontal section of the pipe release jets of air into the bottom of the tank, and as this escaping air bubbles up through the liquid contents, a mild agitation of finishing material occurs. This is quite effective.

Market Development Company Formed by Denham

To fill a need in the industrial and trade marketing fields for an organization capable of laying out and executing complete market development programs, Athel F. Denham, for many years associated with the Chilton Co., leading publishers of business papers, has organized Denham & Co. with offices in the Book Bldg., Detroit, Mich. Under the new set-up, Mr. Denham will have the cooperation of a number of specialists for particular phases of the services, which include market analysis, development of sales plans, industrial and trade advertising, literature and sales helps, consumer research as applied to the industrial and trade fields, and publicity.

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Permits fine adjustments from small round spray to wide fan shaped spray with all widths in between available. Always located at the back of the Thor Model 2, a feature that has been widely imitated, the spray adjustment has been improved; it remains close to gun body.

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ECONOMICALLY Coating Small Parts

by H. H. Ford

The author has had 25 years' experience as finisher, foreman and adviser in production work. In this article he reveals some experience in finishing small parts with a whirling machine.

★ ★ ★

TODAY the trend in manufacturing calls for the employment of equipment and materials which produce the best results economically; in other words, manufacturers are interested in getting the most out of every dollar invested or spent. In this connection, I have in mind a machine known as the Filwhirl Enameler which opens up remarkable possibilities for finishers of various small articles such as hair pins, golf tees, small metal and wood toys, knife handles, pencil parts, nuts, bolts and all other small goods that measure from say ¼ to 6-in. long and from ¼ to about 1½-in. wide. By "finishers" I mean concerns that do staining, painting, enameling, lacquering, etc., on a production basis. Having had a great deal of practical experience in the work, having studied the machine from all angles, and knowing what it can do in the way of large production and quality finishing, I can speak with some authority.

To quote some typical daily production figures, I have known this machine to coat with clear lacquer as many as 600,000 to 750,000 articles measuring from ¼ to 1-in. long and from ¼ to ½-in. wide, whirling the articles practically air dry and using only from six to eight gallons of a good grade of dipping lacquer which, in this case, was reduced 50%; that is, four gallons of thinner to four gallons of lacquer. This performance was for an 8-hour day.

On other jobs we have enameled, in an 8-hour day, as many as 120,000 to 225,000 articles ¼ to 6-in. long and 2-in. wide using about five gallons of enamel and one-half to two gallons of reducer, depending upon the color desired.

In the operation of this machine it is important to have a competent operator who can keep his mind on the work. He must

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be able to read a hydrometer and understand the reducing solvent to be used. It is necessary to use a hydrometer to achieve success because the finishing material must be kept at the proper consistency at all times to insure a uniform coating. The viscosity of the material changes from 1 to 5% per hour and up to 25% per day. The reason for this change is due to the evaporation that takes place during the time the machine is whirling and while material is running out after each whirl. A reading should be made at least every two hours. The extent of changes in viscosity of the material being used will depend upon the number of whirls per hour and also upon the temperature of the room in which the machine is operating.

Another matter to be taken into consideration is the enamel or lacquer that is used. In order to properly cover articles by this mechanical whirling process, the material must have the proper base for each job it is to be used for, such as wood, steel, zinc, lead and cast iron. Upon request, I will give the name of the material I have used.

After a few weeks of practice a new operator will become more familiar with the work and as a result he will be able to handle the machine better and therefore increase his production and effect a substantial saving in material for his company.

After a batch of small parts has been coated by this whirling machine, it is customary to empty the parts onto trays and allow them to air dry about one-half hour. Then loosen up the articles and, if you wish, you may turn them onto other trays so they will be free from sticking to the tray and to one another. Finally bake them in an oven until the finish is thoroughly hard.

Articles that have been coated with clear lacquer can be air dried for 15 to 30 minutes, or baked about 10 minutes at a temperature of 250°F.

When cleaning this machine the operator uses the same solvent as was used in reducing the finishing material; this same cleaning solvent can be used over again for reducing material the next time the operator uses that same color. It takes about 45 minutes to clean the machine if enamel has been used, and about 15 minutes when lacquer has been used.

I have known one of the machines to pay for itself in the first three months it was used. This was a case where large production and cost of material were important factors. I am now operating one of these machines in my department and we expect to save from $10,000 to $20,000 in material and labor during the first year. It is a machine that can do the work you want it to when you operate it properly.

Special care should be taken that no freshly dyed or lacquered articles, finished by spraying, be allowed to remain around the machine when it is whirling clear lacquer, as the fumes have a tendency to cloud up the finish. A suction fan should be installed at least 4-ft. above the whirling machine to keep the fumes and odor from the operator.

Industrial ovens and dryers for bake-finishing and force-drying are described and illustrated in a new catalog by The Gehnrich Corp., Long Island City, N. Y.

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Cleaning Bed Springs

Referring to an inquiry under the above title by K. M. A. Co., in January issue, page 4, you generally find that these springs are naturally more or less covered with grease which must be thoroughly removed before applying the enamel. For the cleaning I suggest using naphtha. Make a large shallow tank of galvanized iron about 6-in. wider and 6-in. longer than the dimensions of the largest springs. Place a set of springs in the tank and, with a large brush or broom, slush the entire unit. Hang up to dry.

Two men can work to the best advantage on this job — one on each side of the tank. Change the naphtha when it begins to become loaded with grease and dirt. Also, be careful that no sparks are made, even in the vicinity of the naphtha vapor, as this will almost surely result in an explosion.

You do not say whether you finish with air-dry enamels or bake enamels. I have contacted many firms and have demonstrated with both air-drying and baking enamels.

An overhead conveyor and track is the most practical equipment to use for handling the springs after applying the enamel, whether they go into an oven for baking or into a room for air drying. Dipping is the most practical and cheapest way to apply the enamel. This will require a large tank on the order of the cleaning tank —with enamel enough to completely cover the spring when it is laid flat, and with a drip board at one end of the tank arranged in sloping position to allow the surplus enamel to run back into the tank. With a man working on each side of the tank, they can finish a good many springs per day.

Any reliable manufacturer of industrial finishes can supply you with a satisfactory bed spring enamel.—J. E. GREENE.

Questions « Answers

Cigarette-Burn-Proof Wood Finish

As a result of publication of a typical inquiry for cigarette-burn-proof finish, and the Editor's request for information on this subject, four interesting letters have been prepared and sent in by readers of INDUSTRIAL FINISHING. One is from Mr. R. C. Shuey of the Bakelite Corporation, 230 Grove St., Bloomfield, N. J. Mr. Shuey says:

In the February issue you discuss the need for a cigarette burn-proof finish. The writer of the letter quoted says that he realizes it may be impossible to secure the ideal finish, and with this we are inclined to agree. However, I have seen some very interesting demonstrations of an approach to it.

A varnish coating made with one of our Bakelite resins has been placed over a common rubbing varnish on white maple and a burning cigarette allowed to lie on this double film. Measurements show that the temperature may reach as high as 1000°F., so it is hardly expected that any organic substance would be unaffected. However, after the cigarette had burned over half its length a knife was used to peel off the coating for examination. The varnish film made from Bakelite was found to be darkened in color but

still flexible and sound. The film beneath was charred and practically destroyed. The maple also was affected sufficiently to leave a permanent mark, but on darker woods the injury would not have been very serious.

This varnish could not be considered an easy-rubbing type, as its exceeding toughness adds considerably to the rubbing expense. However, it can be rubbed and on table tops it makes an exceptional finish because of the combination of mechanical strength, toughness, resistance to strong liquors, etc., as well as its high heat resistance. We class it as one of the most durable finishes known at the present time.

The type coating referred to is made by a number of manufacturers . . . .

If you think your inquirer would be interested in a material of this type, we would appreciate your suggesting that he write one of these companies, or, if he prefers, write us and include the names of suppliers with whom he is now dealing and we shall be glad to check with them as to the identical material. — R. C. Shuey.

Mr. Greggs E. Phillips of Melrose, Mass., wrote us as follows:

In the February issue of INDUSTRIAL FINISHING, you solicited comment on a slow-burning, cigarette-ember-resisting finish. It is the writer's belief that there is no finishing material which will fulfill the ideal requirements outlined in your "type" letter which is wholly representative of this character of inquiry. The user of such finish must accept a compromise in some measure or another. Most of the inquiries received by the writer have, in addition to asking for non combustibility, asked for complete alcohol resistance in the same finish.

It must be recognized that any finish, whether pyroxylin, orthodox varnish, or synthetic resin, has a definite charring point, and that a lighted cigarette or cigar, on the firey end, is at least up to the minimum kindling or ignition temperature of the tobacco.

Cellulose acetate would seem to be the most likely ingredient for such a finish. It has been used as the base ingredient of lacquer in finishing metal ash trays because of its low inflammability. This cellulose ester has not been formulated for more extensive use on wood because:

1) Cellulose acetate and the solvents used with it are expensive.

2) There is a limited availability of resins compatible with cellulose acetate, and their cost is high.

3) The build obtainable is extremely low.

The low build characteristic of cellulose acetate finish for use on wood, coupled with the admitted higher cost, does not put it into the class of meeting entirely the demands for char resistance. There is the probability however that if the acetate could be filmed by multiple coating, excessively expensive to say the least, a wholly satisfactory finish would result.

One suggestion made by the writer to these inquirers is that they use a cellulose acetate sheet, applying the sheet after the manner in which nitrocellulose sheeting is applied to toilet seats. Whether this suggestion has been followed is not known, but the chances are that it has not because the increased cost of the finished article would not return sufficient premium in the retail sales price.

Until further research effort is expended by lacquer chemists, there will probably not be a suitable recommendation to give in answer to this typical inquiry other than the one suggested above, and which may be of interest to your readers.

Mr. Ingram Dudley Gruber, of the Roxalin Flexible Lacquer Co., writes:

"The enclosed news release 'New Enamel Resists Cigarette Burns,' describes one of our new synthetic enamels that really serves a dual purpose—it is cigarette burn proof to an extreme degree and it also displays great resistance to alcohol.

"As a matter of fact, a great many service tests have been conducted in our laboratory to prove these qualities; and furthermore an ash tray finished with this coating has been in constant use on the writer's desk for the last month. No discoloration or softening of the finish has resulted.

"You may have observed that the different ash trays on the market have either plated surfaces or they are made of materials such as glass or plastic compositions.

"The comparatively few enameled ash trays that are manufactured invariably discolor and soften quickly when in contact with lighted cigarettes.

"Briefly, to our knowledge this is the first enamel that stands up under this abuse, and it can be used with equal satisfaction on metal surfaces that come in contact with alcoholic content liquids." (See page 42.)

Another Bakelite letter, this one from the main office at 247 Park

Sales drooping?

WHEN SALES DROOP, it is a sure sign that something is wrong. As often as not, it is hard to determine just what is causing the slump. Sometimes it is seasonal and again it may be caused by certain local conditions. Very often sales droop because of the lack of eye appeal.

EGYPTIAN FINISHES have a knack of adding the appearance that attracts customers. Colored Enamels and Lacquers, Transparent Lacquers and many novelty finishes are available in EGYPTIAN QUALITY that will enhance the beauty and durability of your product.

When you are again in the market for finishes, won't you please talk the matter over with us? We believe we can help you.

In the meantime, send for our color card and literature describing EGYPTIAN FINISHES. Entirely free and no obligation. Do it today.

EGYPTIAN SUPERIOR LACQUERS

THE EGYPTIAN LACQUER MANUFACTURING CO.

ROCKEFELLER CENTER

1270 SIXTH AVENUE NEW YORK

EGYPTIAN · LACQUER

Ave., New York, N. Y., signed by Mr. Gordon Brown, Sales Manager, is also interesting:

"Referring to a question appearing in your February issue, we have discovered in some of our experiments that a varnish made of 100% BR-254 Bakelite base has withstood destruction by burning cigarette, but the wood under the varnish film has charred. We do not mean to infer by this that a varnish film made on a Bakelite resin will withstand the temperatures of a burning cigarette, for these temperatures often go to over 1,000°F. On the other hand, we have observed the phenomenon mentioned; hence feel that what is needed is more than a film to withstand the temperature of a cigarette.

"In the manufacture of Bakelite Laminated a combination of paper and chemically reactive resin is used to make the product. Both have carbonization points well below 1,000°F., yet material is produced that will not burn, blister, or char from a lighted cigarette or cigar. This is accomplished by incorporating just under the surface of the laminated material a thin sheet of copper foil which conducts the heat away from the surface so rapidly that the material does not get a chance to char. This leads to the suggestion that it would be worthwhile experimenting with finishes using metallic pigments to overcome this difficulty."

The Maintenance Department

The cost of lost production time due to a breakdown and its repair should be added to the cost of the repair, and the entire amount charged to the maintenance department—that is the belief of one of the executives quoted in "The Maintenance Department," a report recently issued by the Policyholders Service Bureau, Metropolitan Life Insurance Co. Other equally suggestive comments, particularly concerning practices and procedures, are quoted in this new report, which is the result of a survey of the practices of several representative companies. Organization, operation and control methods are discussed in usable detail.

Preventive maintenance is listed as being one of the foremost of the various functions of maintenance departments. The report states that a popular procedure in carrying out a plan of preventive maintenance is the use of inspection report cards containing lists of items that must be checked. In a number of cases the inspector's report is in the form of a work order, having space for a description of the work to be done, estimate, actual cost, and essential information concerning start and completion of repairs.

Book on Lindol-Plasticized Lacquer Films

The Celluloid Corp., 10 E. 40th St., New York, N. Y., announces completion of a new folder on the subject of Lindol, giving its specifications, and application data with reference to its use as a plasticizer in coating materials. The specification folder referred to is in the form of a file folder giving briefly the following information:

1) The purpose of supplying three individual grades of tricresyl phosphate and giving the characteristics of each.

2) Specifications indicating the improvements made on these standard grades and indicating the reasons for these.

3) Boiling point curves showing the percent distilled at temperatures ranging from 500° to 545°F.

4) A table of properties of the various plasticizers in general use.

5) A vapor pressure chart of organic solvents and plasticizers.

6) Specifications covering Lindol emulsions, which incidentally is an entirely new development.

7) Information concerning other products of the Celluloid Corp.

Much of the information given in this specification and data folder is original and of value to coating material manufacturers.

John H. Myers Joins The Ferbert-Schorndorfer Co.

Mr. John H. Myers, formerly vice president and director in the Ebner-Myers Varnish Co. of Indianapolis, and for 30 years identified with the selling of finishing materials to the industrial trade, is now with the Ferbert-Schorndorfer Co., manufacturers of paints, varnishes, enamels, lacquers, Cleveland, Ohio. Mr. Myers severed his connection with the Ebner-Myers Varnish Co. in November 1935. He is now covering the state of Indiana, calling on users of both wood and metal finishing materials.

STANLEY 8994
CLEAR DIPPING LACQUER

This is a clear lacquer which retains and enhances the appearance of elegance so desirable on jewelry, cosmetic containers, vanity cases, brass and copper.

8994 has exceptional dipping characteristics — good flow — permits the dipping of articles of irregular shape and complicated design, leaving them with a smooth, lustrous finish which is free from sags, runs or drips.

8994 is light in color, provides a protective film of unusual depth and hardness, with excellent adhesion and durability.

8994 is equally satisfactory for spray application.

8994 is of Stanley Quality and has been used successfully for years by many manufacturers.

THE STANLEY CHEMICAL CO.
EAST BERLIN, CONN.

LACQUERS - SYNTHETICS - ENAMELS - JAPANS

A Subsidiary of THE STANLEY WORKS, NEW BRITAIN, CONN.

What's New « «

New Enamel Resists Cigarette Burns

This new high gloss baking enamel, Roxyn 12B, recently developed by the Roxalin Flexible Lacquer Co., Elizabeth, N. J., has withstood the heat of constantly burning cigarettes without any discoloration or softening. Special high-temperature-resistant pigments are used in this product to prevent discoloration. Bright reds and greens, which would normally discolor, are available.

It is also claimed that when this enamel was applied on a coaster and then immersed in straight alcohol for one hour, no failure of the finish occurred.

Roxyn 12B, it is further stated, can be applied by spraying or dipping, and bakes for one hour at 300°F.

Fluid Strainer for Spray Gun

The DeVilbiss Co., Toledo, Ohio, has developed a new fluid strainer, The Type VS, for attachment to the fluid inlet of the Type MBC spray gun. The advantage of having the fluid strainer at the inlet of the gun rather than at the paint-tank outlet lies in the fact that a slight residue of material in the line or other "dirt" may be carried to the spray gun if the paint is not strained at the last point before entering the gun. This may cause defects in the finished surface.

The simple working part of the strainer consists of a screen reinforced with coiled spring. This is inclosed in a metal tube. Fluid flow is from the outside to the inside of the screen. Screen is easily removable from the tube for cleaning.

Type VS Strainer is connected by means of its upper or outlet connection to the fluid inlet connection of the spray gun. The lower or inlet end of the strainer to which the fluid hose is connected, is fastened to the lower end of the gun handle so as to prevent undue strain on the upper connection. The latter is bent to give the strainer the proper angle for attaching the fluid hose, and to provide the best gun balance. Thus the strainer design permits the fluid hose to be attached near the air hose, and to run parallel with it, making the gun easy to handle.

Strainer is attached directly to gun.

New Primer Adhesive

The great difficulty in the development of rubber or other protective coatings for application to impervious surfaces like glass, metal, concrete, plaster, etc., has been the lack of an adhesive or other primer which would adhere tenaciously to such surfaces—and which would retain its

WATEROIL STAINS

have won National Approval

They are fast to light, quick drying, non-bleeding and non-grain-raising. Made from water colors.

. . . also!

REAL-FILL FILLERS

There are none better. No shrinkage or lifting from pores. *Clear* colors.

LICENSED OR UN-LICENSED LACQUERS

A trial will disclose their exceptional merit.

LIGHT-FAST SHADING STAINS

Prevent fading and blend perfectly.

No. 1900 CLEANUP POLISH

Eliminates haze or bloom. Miscible in water.

"Unquestionable Quality"—Wood Finishing Supplies

V. J. DOLAN & COMPANY, INC.

1830-32 N. Laramie Ave. Chicago, Illinois

FLOCKS

COTTON WOOL RAYON for SPRAY FINISHES

YOUR best source of supply—from the country's largest and leading makers of Flocks of every description, produced to meet your individual requirements.

We've helped many a product to greater sales appeal . . . the flock finish contributing unusually attractive and outstanding modern effects. We can help you too.

TO PROVE IT—
let's hear from you!

CLAREMONT WASTE MFG. CO.

CLAREMONT, N. H.

The Country's Leading Makers

original gripping quality and strength permanently.

Chemical study of this problem plus several years' service experience has resulted in the introduction of an improved one-coat primer adhesive of this kind, giving a highly tenacious bond, which is now being marketed under the name of Selfvulc "M" Bonding Solution.

Originally developed as an adhesive for difficult applications to impervious smooth surfaces, it has proved even more effective on all porous surfaces—wood, composition, plasterboard, etc.

This primer adhesive is thoroughly waterproof and is said to be very economical because of its great covering capacity. Where an exceptionally strong bond is required, it is used full strength; but where not subjected to high duty or severe service, it can be cut 50%, thus increasing coverage and still further reducing costs.

For protection against corrosion, a single coat of the "M" bonding solution is sufficient, without the use of any other material.

The manufacturer states that the development of this one-coat primer was necessary to make Self-Vulcanizing Rubber lining or coating applications permanent. "M" Bonding Solution is manufactured by the Self-Vulcanizing Rubber Co., Inc., Room 515-G, 605 W. Washington Blvd., Chicago, Ill.

Dipping Machine

A hand-operated dipping machine for small production work has been recently developed and placed on the market by the Northern Machine Mfg. Co., Wausau, Wisc.

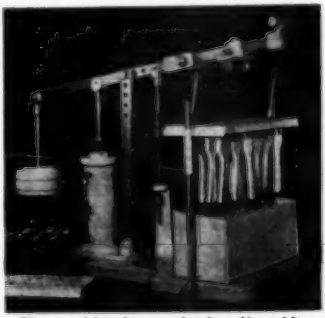
Referring to the accompanying illustration, the chief moving part of the machine is the straight bar mounted to operate something like a pump handle. Starting from the handle hold at the extreme right end, five important parts are connected to the pump-handle bar. They are:

1) An adjustable connection by means of which the articles to be dipped are lowered and raised between vertical guide posts. The pieces to be dipped are temporarily fastened to a square plate which is set into position in the plate holder for dipping, and then removed to a drying rack after dipping. Several of these plates can be used.

2) A threaded bar carrying two threaded stops which can be set to limit the up-and-down travel of the pump handle.

3) A vertical bar to which the pump handle is pivoted, and which acts as a fulcrum.

4) A piston rod the lower end of which carries a piston that moves up and down in the vertical cylinder containing thin oil. Valves in the piston permit the operator to make the down (dip) stroke easily. This down stroke produces an up stroke of the piston which forces oil from



The machine is completely adjustable.

the upper end of the cylinder into the lower end of the cylinder. At the end of the down stroke the operator releases his hold on the pump handle.

5) A rod at the extreme left carrying weights which over balance the weight of the parts being dipped and pull the piston in the cylinder down to slowly lift the loaded plate of

LEOLAC

IS A TRADE NAME NOW ONLY FIVE YEARS OLD—yet it represents a complete line of Industrial and Automotive Lacquers backed by more than twelve years technical experience of L. S. Finch in the manufacture of lacquers.

Territory Available for Reliable Distributors of Automotive Lacquers and Synthetics

LEON FINCH, LTD.

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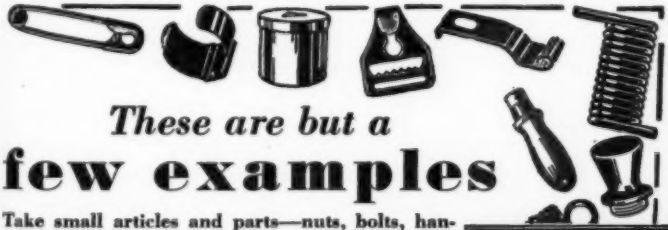
SAN FRANCISCO, CALIF.



These are but a few examples

Take small articles and parts—nuts, bolts, handles, hair pins. wood and metal toys, golf tees, etc.—they can be coated better, faster, at less cost, in the

FILWHIRL ENAMELER

Send us samples of your products for coating in this machine, and we will return them for your inspection, together with cost figures, etc. Do it TODAY!

THE LEON J. BARRETT CO.
Grafton Street Worcester, Mass.

dipped parts from the container of finishing material.

The rate of lifting dipped work from the container of finishing material is adjustable, being regulated by the weights and the flow of oil through the slender pipe and valve at the side of the cylinder. The machine is made so that it can be balanced at all times. For example, if the parts being dipped weigh 10-lbs., the operator will hang about 12-lbs of weight to the weight rod at the back, therefore when he dips the parts, he is only pulling about 2-lbs. on the down stroke.

"Nitrogloss" Durable, Black for Metal

"Wears like porcelain, retains its gloss, dries immediately." So says the Steelcote Mfg. Co., Theresea Ave. at Gratiot St., St. Louis, Mo., in referring to its new product which is especially recommended as an automobile finishing and refinishing material.

Nitrogloss should be reduced 50% with a good lacquer thinner and should be sprayed over a surfacer or combination primer-surfacer, following the same procedure as in applying lacquers. Two double coats are recommended, followed by rubbing and polishing. Other features include:

1) It's a very black black.

2) Does not chalk or carbonize.

3) Dries, smells and works like lacquer.

4) Retains its luster without the use of polish. Test: one year's Florida exposure.

Binks Spray Gun

Greater speed, less air consumption, perfect atomization—these are some of the improvements claimed for the Binks new Thor Model 7 spray gun. The Thor Model 7 has been skillfully engineered after giving sound and practical consideration to all phases and problems of the spray gun users of this country. It includes the suggestions of engineers of some of the country's larg-

Striking in color as well as performance.

est industries, where smart finishing must be obtained at the lowest possible cost.

A revolutionary departure is the introduction of color into the gun body, which is a durable drop-forged aluminum with a black electrolytic coating for surface protection. This is a product of the Binks Mfg. Co., 3105 Carroll Ave., Chicago, Ill.

Pickle or Platinum Pine, Maple or Mahogany

Are you familiar with the color of a platinum blond, or of the polished shell of an English walnut, or the lightest tint of maple finished in white shellac and white wax? If so, you can form some idea of the color of pickled or platinum pine, maple and mahogany — maple being the lightest of the three. These are popular finishes for modern style furniture and woodwork for 1936.

The Grand Rapids Wood Finishing Co. of Grand Rapids, Mich., has sent to INDUSTRIAL FINISHING'S office small sample panels finished in the new light tints. According to the

SURFACERS

PORES NEED FILLING for smooth - textured attractive finishes. Presdwood, celotex, natural woods, rough metals and porous compositions need quick-drying, easy-sanding, high-bodied surfacers—in short, our CEL-U-LAK Surfacers.

These have unusually high body, coupled with low viscosity, permitting a heavy application by spray; air dry to sand in 1½ hours, force dry at 125° for 20 minutes. They are ground finely and have phenomenal adhesion and resistance to moisture.

CEL - U - LAK Surfacers are standard in white, ivory, dark grey and red. They have for 6 years been an outstanding successful item in our line. We suggest you examine it for your requirements.

The
VARNISH PRODUCTS CO.
CLEVELAND, OHIO

Cut Your Rubbing, Polishing and Sanding Costs
with
Paasche
AIRRUBBING AND AIRSANDING MACHINES

Spare your employees that fatiguing labor and secure finer finishes—with Paasche Airrubbing and Airsanding Machines. Easy to handle, well balanced, free from vibration, gives years of uninterrupted service without breakdowns or repairs. For pumice slush, felt or sandpaper. Used by leading industrial manufacturers everywhere.

Write for technical bulletin giving full details of savings possible with Paasche Airequipment.

Paasche Airbrush Co. 1917 DIVERSEY PARKWAY CHICAGO, ILL.

Pioneers of manual and automatic airfinishing, aircoating, airrubbing, portable airpainting units, ventilating units and spray booths.

finishing schedule, each of the different wood panels was first bleached with super bleach, first and second coat solutions in accordance with directions. Only the mahogany was filled and allowed to dry overnight. Then, for all three, two coats of pure white shellac were applied and allowed to dry overnight . . . . after which the surfaces were sanded smooth.

For the pine, the schedule orders: "Glaze with glazing color, wiping nearly clean; let dry overnight."

For the maple and mahogany panels the schedule calls for one coat of semi-gloss water-white lacquer; for the pine, two coats of water-white dull lacquer. Following this, all three are oil rubbed and waxed with polishing wax.

Ultra-speed Clear Gloss and Flat Synthetic

According to C. W. Haynes Laboratories, Inc., Circuit Ave., West Springfield, Mass., the material named above has been formulated to give the wood furniture finisher something new to work with in the production of his finishes. General characteristics of this material are as follows:

Drying Time—Dust free in ten minutes; dries hard enough to handle in 20 minutes; can be polished in two hours, and the finished article can be shipped in four hours. These are actual time limits which absolutely will not be exceeded by the material under normal working conditions. This gives the finisher a good one-coat material when applied over a good sanding sealer, or over shellac. Not only is the element of labor cut down to one coat, but the finishing schedule is approximately the same as two coats of lacquer would be. Furthermore, this material has the toughness characteristics of a lacquer rather than a varnish . . . . it gets tougher with age . . . . and has many unusual properties.

Pliotite Finishes

Pliolite, a product of the Goodyear Tire & Rubber Co., Akron, Ohio, is a rubber derivative used in the manufacture of paints, enamels, varnishes and primers. It is composed principally of a hydro carbon derived from the finest crepe rubber.

Pliolite bases are dispersions of single pigments in Pliolite. All the usual paint pigments are available in this form. The use of Pliolite bases enables formulation of a finish to be made by a solution process, rather than by grinding in pigment. These finishes are recommended for: 1) primers for all metals; 2) acid and alkali-resisting finishes; 3) concrete enamels; 4) aluminum paints; 5) enamels for interior decorative and maintenance work; 6) baking enamels.

Some of the qualities of a Pliolite finish are: 1) Dries quickly by evaporation — hardens by oxidation; 2) levels readily; 3) tasteless, odorless, non-toxic; 4) non-skinning; 5) can be formulated to produce high or medium gloss, or flat finish; 6) bonds solidly—does not separate; 7) produces an extremely hard film; 8) is flexible on non-rigid surfaces.

The film repels water, ranging from mist, spray or rain to constant immersion. It keeps moisture out of concrete and composition surfaces . . . Withstands salt spray and salt water immersion and caustic alkalis of any concentration. . . . Can be brushed, sprayed or dipped.

A New Material Solves An Old Problem

An announcement from Maas & Waldstein Co. of Newark, N. J., follows:

"During the past two years most lacquer manufacturers have spent considerable time and money in an effort to make a high-viscosity lacquer that would have equal or com-

parable qualities of low viscosity lacquers. In their experiments they found that by adding enough solids to get the proper build, the lacquer became chalky and brittle. This, of course, was due to the low percentage of cotton used which reduced the toughness and hardness of the material.

"A recent development of the Maas & Waldstein Co. has produced a material they refer to as an oil solution which was first developed as a waterproofing material to meet a specific problem. Later, it was discovered that its use greatly improved the lacquer finish which stimulated further research. The final result is an oil solution containing dyes which makes it a stain of extraordinary quality.

"This stain makes it possible to use a high-viscosity lacquer and still produce a high-grade lacquer finish that is tough and durable. It also produces a lasting and permanent stain equal to any now available on the market. In addition, the oil solution carries over 50% solids which penetrate into the surface of the wood during the staining operation. This prevents the lacquer from penetrating and results in better building, less shrinkage and produces a beautiful finish.

"This new M & W stain can be applied by spray, brush, rag, or by dipping which will meet the requirements of most manufacturers."

Resin for Special Coatings

A new heat-hardening resin of the phenol formaldehyde type, possessing unusually interesting properties, has been announced by The Resinous Products & Chemical Co., Inc., 222 W. Washington Square, Philadelphia, Pa. This product, known as Amberol HH-1, is intended for the production of highly-resistant coatings and finishes, particularly on metal. Heat-hardening phenolic resins, in the past, have been used largely in the production of molded and laminated plastics, containing fillers to counteract inherent brittleness.

Amberol HH-1, unlike other available heat-hardening resins, possesses good elasticity and adhesion and retains the impact and mar resistance of the type. It is also highly resistant to heat and to a number of solvents. It is supplied in toluol solution, and is applied by the normal methods. A fairly high baking temperature (340°F.) is required for its final cure, which differs from that of available finishes in being effected without oxidation.

Extensive application is expected for Amberol HH-1 in the field of metal finishing, because of its excellent adhesion to metal surfaces, both dull and polished. It is also recommended for such uses as coatings on radiators, exhaust pipes, and the like, where heat resistance is important.

Blister-Proof Micarta

A new heat-resistant material suitable for application on bar, counter and table tops or any other surface likely to come in contact with lighted cigarettes and cigars has been developed by the Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa. Known as "Blister-Proof Micarta," it is made by molding a thin metal sheet directly beneath the surface of the Micarta plate. This sheet acts as a rapid conductor of heat, preventing high temperatures in local spots which otherwise cause blistering of the material.

Cleaning and Drying Machines

Bulletins describing and illustrating modern economical equipment for cleaning and drying metal parts preparatory to finishing or plating, have been prepared for distribution to the industrial trade by the Industrial Washing Machine Corp., New Brunswick, N. J.

Letters from Readers of "Industrial Finishing"

The names and addresses of firms or individuals whose letters and inquiries appear in this department may be had by writing this office, or letters addressed to them in care of this office will be forwarded promptly.—The Editor.

Tumbling White Enamel

We have experienced some trouble in getting a pure white finish on metal parts by tumbling and baking enamel. If you can advise us how a white finish can be obtained through tumbling, we would appreciate the information. We would also like to know of some manufacturer who can furnish a high grade white enamel. —G. B. M. Co. (Automobile Hardware Specialties).

Bleaching Mahogany

In an issue of INDUSTRIAL FINISHING magazine of last year there appeared an article regarding the latest developed process for bleaching woods, especially mahogany. A customer of ours has requested that we obtain information regarding the bleaching of mahogany, and we would greatly appreciate your sending us the method of this new bleaching process.—N. S. Co. (Paint Shop Supplies).

Flocks and Sizing Material

We are very much interested in the application of flock. We understand that on page 19 of May 1935 issue, you had an article covering this subject. If you have any other information, we would thank you for mailing same to us, together with your May issue. In the meantime, we are getting in touch with the Stapled Fibres Corp. who, we understand, make the flock powder. Their name we got from your publication in one of their ads.

Would also like to know a source of supply where we can get the special glue to be used in connection with the flock material. No doubt you have in your files information as to where this glue can be obtained. If you have more than one name, please furnish us with the nearest one to this city (Brooklyn).—J. Mfg. Co. (Lamp Shades and Novelties).

We note in your November 1935 issue of INDUSTRIAL FINISHING, under "Letters from Readers," an item from the Claremont Waste Mfg. Co., regarding flock-backed mirrors. We would appreciate your advising the Claremont Waste Mfg. Co. to get in touch with us immediately, as we are also interested in flock backed mirrors and novelties. We would also appreciate obtaining the names of any other flock manufacturers.—E. G. & S. Co. (Novel Finishes Developed).

As a spray shop operator and manufacturer of decorative accessories, I would appreciate learning as soon as possible the names and addresses of flock manufacturers other than Zapon and the Stapled Fibres Corp.—the only two concerns I know of at present. I have the addresses of these two companies. However, if you would care to refer this inquiry to them and to the other manufacturers of flock materials, I would be greatly obliged.

In this connection I am also eager to learn whether powdered cork is available for sprayed finishes.—C. S. & Associates (California Craftsmen).

This question of using ground or powdered cork for spraying is something on which we are not well versed, but we can see no reason

why ground or powdered cork could not be applied to an adhesive surface in the manner that you describe. We know that for a good many years the U. S. Navy used cork in connection with paint on battleships, although the purpose here was not one of decorative character but rather to absorb moisture, preserve the paint and prevent corrosion. In some cases this cork was mixed with the paint and applied with a spray gun, but we believe that in no case was it applied to the painted surface.—Armstrong Cork Products Co.

Striping Tools

In your February issue, on pages 40 and 42, you mention some striping tools which sound as though they might take care of the needs of one of our good customers. We would appreciate it if you would have the manufacturers of these devices get in touch with us promptly, so we can explain the problem to them and then refer them to our customer if it seems advisable. — B. U. Co. (Fine Industrial Finishes).

Bleaching Veneers

I am enclosing a page from the "Canadian Woodworker" with reference to bleaching veneers. On account of me being a subscriber to your INDUSTRIAL FINISHING book and also foreman finisher at the H—— Furniture Co. here (Ontario, Canada), I take the liberty of asking you if you could secure the formula of this bleach for me. If you are unable to do this, would you kindly advise me where we could purchase this bleach?—E. H. W.

Water Dipping Lacquer

We have several inquiries from people who are using our machines for water-dipping lacquer. Will you please be good enough to give us the names of lacquer companies who make this special lacquer?—B. Q. Co. (Automatic Dipping & Finishing Machinery).

Paint Can Shaker

I would like information on the following items which were mentioned in February issue. First, I would like to know the price of the paint-can whirling machine which you discussed on page 32. Is this machine made to take both a 1-gallon can and 5-gallon can? I would also like to know whether the manufacturer would be willing to send this to us for trial purposes.

The second article was the compressed-air filter with the cylindrical glass case, mentioned on page 26. I would like to know the price of this article.—C. Mfg. Co. (Flashlights; Brass & Plated Goods).

EDITOR'S NOTE: This inquiry has been referred to the manufacturers of the equipment in question.

Reclaim Wiping Rags

We notice an article in the February issue of INDUSTRIAL FINISHING in connection with the reclaiming of used and soiled wiping rags, and would like to learn the address of the manufacturer of this equipment. —G. F. Co. (Furniture).

EDITOR'S NOTE: The company's name is under the illustration accompanying the article, see page 11. It is Rochester Engineering & Centrifugal Corp. (Division of The American Laundry Machinery Co), 110 Buffalo Road, Rochester, N. Y.

Wood Sealers

There are two items in the January issue of INDUSTRIAL FINISHING that we would like more information about. On page 65, E. R. G. writes of his problem in treating myrtlewood. We are confident that we can solve his troubles and would be glad to have his name and address.

On page 66, E. V. G. Co. (Wood Heels) inquires for a treatment for laminated wood heels. We have accomplished something on this subject for both the Brooklyn Wood Heel Co., and the Williamsburg Unity Wood Heel Co. We would be glad of an opportunity to write these inquirers on receipt of their names and addresses.—Geekay Lacquer & Chemical Co.

Fire Extinguisher

In a number of INDUSTRIAL FINISHING, about six months ago, there was a description of a fire-fighting device consisting of a glass vessel containing carbon tetrachloride or similar liquid-generating fire extinguishing vapor, which was held up by a clip containing a fusible-metal

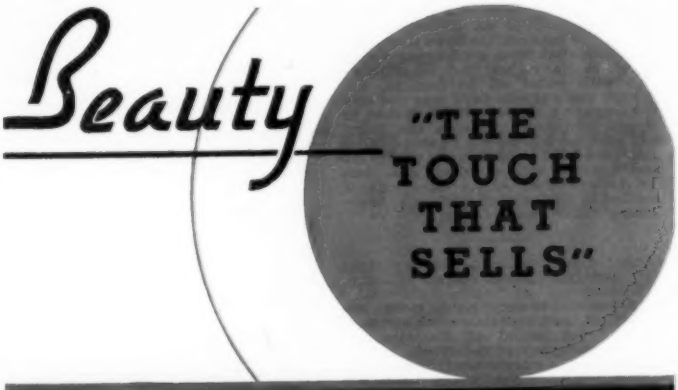


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PLATE GLASS COMPANY
INDUSTRIAL FINISHES

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LACQUER
ENAMEL
VARNISH

link—the idea being that if a fire occurred, the link would melt and allow the vessel to break liberating the liquid.

It appears to us that we might have considerable use for this as a substitute for a sprinkler installation in our paint store, and in one or two other places where an automatic extinguishing arrangement is desirable. We will be glad if you can get the manufacturers to write us, quoting prices for these appliances in single, one dozen, and six dozen lots.—A. Simpson & Son, Ltd., Pirie Street, Adelaid, South Australia.

EDITOR'S NOTE: We believe that probably this company has in mind the "Firetox Automatic Chemical Sprinkler Unit," which is illustrated and described on page 34 of August 1934 issue of INDUSTRIAL FINISHING. It is a product of Firetox System, Inc., Attleboro, Mass.

Paint Respirator

Please send us information regarding price and suitability for use when spraying with lacquer, on the M-S-A Comfo Paint Respirator, as advertised in INDUSTRIAL FINISHING. —A. H. Co.

Flexible Lacquer

In your January issue, on page 30, you mention a new flexible clear lacquer that stretches, to be used on leather, rubber and fabric. We are interested in knowing more about this material and request that you forward this letter to the company, with our request for one quart of the clear lacquer be sent to us immediately via P. P., C. O. D. for experimental purposes. Please forward us dealers quotations.—K. T. Co.

Cliffstone Wanted

Please ship, parcel post, 10-lbs. powdered Cliffstone. If you do not sell Cliffstone, please advise where we might get it.—Z. Co.

Burning-in Article OK

Will you please be kind enough to give us the address of Mr. F. W. Purdon, who wrote the article on page 28 of the March issue on Burning-in? We have read this article and have found it most interesting;

Manufacturers of:

CLOCKS—ELECTRICAL GOODS — NOVELTIES — TOILET SEATS — TOYS, LAMPS, ETC.

Make your Finish Sell your goods!

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● Produces a beautiful lustrous finish with excellent adhesion and good coverage in one coat. Can be polished or buffed to obtain a higher lustre.

● Furnished in: Gun Metal, Gold, Silver, Bronze, Copper and various pastel shades.

● Has wide use and varied application. Is now being used effectively over a wrinkle finish to enhance its decorative appearance.

Chart showing full line of colors or a finished sample will be sent on request.

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ELIZABETH, N. J.

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Sure protection against microscopically fine dust . . . and a trifle over 5 ounces in weight.

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Rifle-like precision assures accuracy and freedom from varying adjustments. Every part touched by the paint is in the single unit spray head. Sprays all types of material.

Write for new "Type MM" catalog.

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1402 W. Baltimore St., Baltimore, Md.

in fact the finest article on the subject ever written in any magazine. We also wish to thank you for your kind cooperation in the past and to wish your magazine continued success.—Universal Shellac Stick Co.

More Information

I would appreciate receiving further information in reference to the articles, "Rusty Iron Finish" by A. F. Byers, and "Cleaning Metal Sheets" by Chas. F. Moss, which appeared in the Questions and Answers of February issue. Also I would like more information on "Reclaim Used Wiping Rags," which likewise appears in the February issue.—B. N. (Shop Supt.).

For Finisher's Hands

Will you please give me the name and address of a manufacturer who makes the product known as "Protek," or anything similar in the way of a hand soap for removing dirt, and yet harmless to the hands? I notice O. E. O. Mfg. Co. (January 1935, page 4) is also inquiring about something I have in mind. When I work with shrivel black, then highlighting, my hands get very black, and lacquer thinner will not remove this.—F. S.

EDITOR'S NOTE: A similar inquiry for finishers' soap appeared on page 56 of March 1936 issue. Names and addresses of Protek, Hand Save, Lakeroff Liquid Soap, Skin-Gard, Wham, etc., etc., have been supplied to this inquirer.

Bakelite-Base Varnish

We would like the name of the varnish manufacturer who makes a synthetic varnish with a Bakelite base, whose varnish is acid proof. We have seen walnut trays finished in this manner and they are supposed to stand such acids as sulphuric and hydrofluoric. — I. E. P. (Mfrs. of Furniture).

Decorative Colors on Stainless Steel

We note in the September 1935 issue of INDUSTRIAL FINISHING, page 58, an article on "Decorative Colors on Stainless Steel." In paragraph three of this article it states: "A

more recent development is a method of etching in colors. All color shades are possible." Will you please furnish us with any data you may have regarding this so-called method of etching in colors on stainless steel? —M. B. Q. Co. (Cash Registers).

Rubber-Lacquer Coating

It seems to me that we read somewhere in your publication about a rubber-like lacquer or coating that could be sprayed or dipped on metal or wood, and which felt and looked like rubber, yet was obtainable in colors. Do you know anything about it? Who makes it? We will appreciate your help.

EDITOR'S NOTE: Perhaps you have in mind "Pliolite," a new series of paints, enamels, varnishes and primers by The Good year Tire & Rubber Co.

Bleached Finishes

Having been a subscriber to your magazine for a number of years, I am wondering whether you could give me some information on Pickle Pine, Pickle Maple and Pickle Mahogany. I am interested in the color and the process of finishing these woods.—K. H.

EDITOR'S NOTE: See article in this issue on page 46.

Graining on Metal

I wish to know the name of the process by which steel office equipment is finished to imitate natural woods such as walnut, oak, etc. Most of it is more perfect than the natural wood, and more perfect than I think any hand work could be.

Is it hand work? Does photography have any part in the process? Is the finish coat baked on, or is it one of these synthetic, alcohol-&-acid-proof finishes that air dries?

I don't mean to ask you for a lot of detail, and if you can tell me what to read to get this information I will appreciate it.—W. G. H. (Paperhanger and Painter for Particular People).

Casket Primer-Surfacer

In January issue of INDUSTRIAL FINISHING, on page 27, we note that a casket manufacturer is interested

A NEW MAPLE
FINISH
RECENTLY DEVELOPED BY OUR EXPERT FINISHERS

Furniture finished with this new and attractive New England Maple finish has impressed many furniture manufacturers with its unusual beauty.

This finish is now being used by many leading Furniture Manufacturers.

WRITE FOR BULLETIN NO. 10

Fillers Stains SPRUANCE QUALITY Lacquers Varnishes
Enamels for all purposes

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RICHMOND AND TIOGA STS.
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Write for samples of these wiping stains that provide far greater uniformity than all other oil stains. Their use greatly reduces the need for shading.

For trimmings on table legs and case goods and other surfaces, NU-TIPE Wiping Stains provide light uniform colors as color-fast as water stains. Made for brushing, dipping, spraying.

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PHILADELPHIA, PENNA.

in a primer-surfacer which requires no sanding. We have recently developed a primer of this type, which is now being used by various casket manufacturers; we shall appreciate it very much if you can give us the name of the company making this inquiry.—Murphy Varnish Co.

Bicycle Enamels

Please let us know the address of the Baer Co., makers of enamels for bicycles. — M. (The Sportsman's Store).

EDITOR'S NOTE: We presume you mean Baer Bros. (Paints, Varnishes) 438 W. 37th St., New York, N. Y.

Heatproof Aluminum

We note in INDUSTRIAL FINISHING for January 1936, on page 24, something about aluminum finishes. Under the heading "Heatproof Aluminum" we read that this aluminum may be used in places where extremely high heat is an issue. In manufacturing reflectors, we spray aluminum on the outside of some of our units, and we note that the heat does not help the color of the aluminum, and also that the paint has a tendency to come off. We spray the aluminum bronze on, using a lacquer base.

Perhaps you could tell us who is the manufacturer of the paint around which this story in INDUSTRIAL FINISHING is evolved. We are interested in getting any available data that will give us an aluminum we can spray on, and which will still withstand high heat without turning color or peeling.—X. Reflector Co.

Playing-Card Finish

Please advise names of manufacturers of "Cophane' and the "Clear Glazing Finish," as mentioned in INDUSTRIAL FINISHING of January 1936, under "Major Review of Developments During 1935." Also, any other manufacturers you know of who make a clear finish that can be applied on paper such as a playing card. The finish must be waterproof and elastic.—T. Q. T. (Special Printing).

Baked Finish for Wood Handles

TO SECURE a desirable baked finish on wood handles constant attention to details is important. So many things may happen to ruin your labor that the smallest thing should not be overlooked. In any finishing job, and particularly in a baked finish on wood, begin with a clean room and clean equipment.

All wood contains some moisture and if this is left in the wood, it is liable to spoil the finish by being forced out through the enamel during the bake-finishing process. To guard against this the bare wood should be treated with heat before any finish is applied. In other words, the excess moisture should be driven out just before the finish is applied and baked.

Experience or experimenting will determine just how dry to make the wood. Air-dried lumber will usually require heat treatment from two to three hours at a tempertaure of 250° to 300°F. to secure satisfactory drying. During this drying or baking-in-the-white, a circulation of air must be maintained in the oven.

The handles should be stacked or racked loosely so the air can filter through them, thereby allowing the moisture to escape. The wood surfaces may be a trifle rough after this operation — and it is impossible to obtain a satisfactory smooth finish over rough surfaces. Small articles such as handles can be smoothed in a tumbling barrel.

After the smoothing operation, the handles should be dusted off either with compressed air or

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whatever other facilities are available. This dusting process insures cleaner dip finishing and a cleaner finished surface. There are various methods of coating, but one convenient way that eliminates considerable handling is to use racks which will also serve to hold the handles properly during the baking operation.

Dip the handles as soon as possible after the baking-in-the white. Do not allow them to stand around in the open, as they will absorb more moisture.

On some classes of work a tumbling filler is applied directly after the smoothing and dusting operation. The baking temperature on the tumbling filler, dipping surfacer, and enamel should be brought up slowly at the start. A fairly safe way is to gradually come up to the 250°F. during the first hour; then raise the heat to 275°F. and hold it there for two or three hours, or until the finish is properly baked. Care should be taken that the air vents in the oven are open. It is a good idea to allow the freshly dipped work to stand a short time before giving it the heat, especially on wood, as it is liable to blister if placed in the heat when wet. The temperatures just mentioned apply to black.

Use the enamel thin if possible. There are several reasons for this. It flows more evenly, dries better, and it is not so liable to chip off or become marred. Of course, the use of thin enamel may require more coats, but I believe it pays in the end, all things considered.

Never bake the later coats at a higher temperature than the preceding ones. Lower each succeeding baking temperature two or three degrees.

In baking colors on wood, the same process is used as for the black, with the exception of the temperature. Colors will not stand as much heat as black, especially the lighter tints.

Avoid baking light colors in the same oven and at the same time with darker colors, as they do not usually bake at the same temperature, and are liable to change color—becoming darker. Of course, this is not always the case. Colors can be made to bake at the same temperature, be they light or dark, but except in special cases they are not made that way. It is well for the finisher to know what baking temperatures the colors to be used will stand without danger of changing color.

Be sure to provide suitable circulation of air in the oven to take away the fumes.

No set rules can be laid down on baking, as almost every color varies. Here you must trust in the manufacturers' specifications and supplement this information by using your own good judgment. —J. E. GREENE.

Referring to "C. L. T. Co.," who inquired about baking a finish on wood, page 40 of November issue, we know of many wood handle manufacturers who coat handles in black enamels and japans, and bake at 250°F. for about four hours for each coat.

The usual procedure is to first bake out the bare handle to remove excess moisture; then, as soon as the handles are cool enough to handle, put on the first thin coat of filler. This method lessens the tendency of blistering when succeeding coats are applied. —HILO VARNISH CORPORATION.

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To improve metal products
—see H. R. Simonds' new book
FINISHING METAL PRODUCTS
337 pages, 6x9, illustrated, $3.50
BESIDES fully describing modern shop technique, this book coordinates metal finishing processes and finishing problems with the over-all problem of manufacture. The usual types of finish, such as galvanizing, polishing, plating, lacquering, and painting are thoroughly treated, as well as many new finishes of a specialized nature. An important feature of the book is the section on cleaning and descaling. Throughout, both technical and commercial aspects are considered in detail in an endeavor to point the way to more attractive metal finishes and to more efficient means of producing them.
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222 E. Ohio St., Indianapolis, Ind.

Industrial
FINISHING

Distributed to Executives and Foremen Finishers in industrial plants where finishing coats are applied with finishing equipment

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EDITORIAL

New Homes to Outfit with Better Designed Goods

The trend toward building more new homes is gathering momentum, and this means something significant to manufacturers of all kinds of home furnishings—equipment for every room in the house. The majority of these new homes are going to be outfitted in the modern style—modern utility equipment for heating, ventilation, sanitation, cooking, cleaning and all other facilities; also, modern styles for objects designed chiefly for ornamentation. The design and finishing of furnishings and accessories for these new homes will have to be strictly modernized if manufacturers expect them to sell in increasing volume.

As business and employment gains continue, more and more old and out-of-date household equipment is going to be discarded and replaced with what's really new. People are eager to take advantage of the numerous improvements that leading manufacturers have incorporated in their products during the past five or six years. The point is that all other manufacturers of products which go into homes and offices will have to devote more attention to the design and finish of their goods. Whatever it costs to make an article salable in the volume necessary to make profits, will probably prove to be a good investment. Plenty of good individual designers are available, and several firms that sell finishing materials employ experienced designers whose services are offered to customers.

Large firms recognize this trend and are going after increased business in a big way. For example, one nationally known company's merchandising and advertising programs for 1936 are pointed toward the sale of 100,000 electric refrigerators and 10,000 commercial refrigeration units more than the firm sold in 1935. That increased business represents $20,000,000 worth of business at retail prices, and the company's factory schedules, prices of new models, advertising appropriations, and material orders have been based on securing that added business. Why do they think they'll get it? One reason: Be-

cause their new 1936 models of electric refrigerators, electric ranges, electric water heaters, and gas ranges set new standards for design, performance and operating economy. And this is just one of several nationally known firms in that particular line of business. Incidentally, this same company will spend, in 1936, $1,000,000 more for advertising than it spent in 1935.

What Equipment Does the Finishing Salesman Need?

One of our friends — a salesman-demonstrator of industrial finishing materials — writes in a suggestion which will probably interest all other salesman-demonstrators, as well as purchasers and users of industrial finishing materials. Here's what he writes in his characteristic original style of expression:

"Here's a thought: Even the checked-suit boys are catching onto this, that nowadays effervescent personality alone is not sufficient to sell industrial paints; that the manufacturers who will be in business tomorrow and longer are those who buy, not promises but, proved performance. And the paint peddler must know how to make the paint perform.

"To be able to diagnose, prescribe and cure, the paint peddler or technician needs certain minimal (minimum) field-use equipment. And for him to go further, to have more elaborate apparatus, will do him no hurt; may help him build sales.

"What should his duffle-bag hold? Suppose we try to find out? Let's look over the offered gadgets, pick out some and assemble a kit, a Paint Doctor's kit. You could suggest to the gadget maker that he send in one with complete data. I would be pleased to try it and use it under actual industrial conditions; then give it a write-up in a frank and rosy style.

"You could run these articles, one at a time, for quite a while, for the interest and benefit not only of the salesman but also many a P. A. and F. F. — and some Factory Managers, too. Such a serial has an interest-sustaining tendency; circulation-helping. You would derive benefit; and, through you, I. What do you say?"

Interesting, isn't it? The Editor of INDUSTRIAL FINISHING solicits your suggestions along this line, and will be delighted to publish and pay for the best write-ups that are sent in. Write something now and send it in at your earliest convenience.

The Stimulating Power of Cleanliness and Light

Have you ever noticed the tendency of workmen to become more or less sluggish, listless and fatiqued after having worked in one unchanged establishment for several years? To change workmen offers only a temporary remedy; new workmen become the same way in time.

Clean up the shop interior thoroughly; paint it attractively including the equipment; and, if possible, rearrange some or all of the equipment to better advantage. You will be amazed at the remarkable change it makes in those workmen and in everyone else in the establishment. Such an improvement contributes to a

better quality of work and increased production. It has a stimulating effect, whereas dull, drab, shabby surroundings definitely retard alertness, energy and ambition.

Aside from the stimulating effect upon workmen, which is of major importance, cleanliness, good light, safety, and an adequate distribution of satisfactory ventilation and working space are essential in every finishing room. The nature of the work demands it and practically all of the larger manufacturing firms provide it, considering such an investment decidedly profitable. All the excuses for not cleaning up, painting up and generally improving the shop are weak, whereas the arguments in favor of it are strong, logical and based upon the practical experience of men who make real money.

Listen to the Man Who Wants Something Special

Times have changed. Take for instance the man who asks for something special or out of the ordinary or next to impossible in the way of a product, material, tool, or piece of equipment. Formerly you considered him a nuisance or a nut; but a lot of so-called nut ideas have been taken up and developed into something practical and profitable. With so much competition in standard products of easily recognized merit, more firms are now ready to take a chance on pioneering something new and different if it appears to have a ghost of a show of clicking into popularity, even if only for a short time.

A contented man or woman, satisfied with everything as it is, seldom originates anything new. The man who asks for what you haven't got, or what isn't to be had, has either discovered or recognized the need for it himself, or he has heard of the idea through someone else. Regardless of which may be the case, he is dislosing an idea that may be worth investigating. Thousands of others may want the same thing but not realize it until they see the completed article. Look how the buying public has responded to radios, electric refrigerators, electric household appliances, modern designed furniture, improved automobiles, oil burners, stokers, the new type lighting fixtures, and air-conditioning facilities. All of these at one time were looked upon as extravagant or impractical ideas. New products are replacing old ones rapidly, and the concerns that are ahead with their ideas, fact-finding research, designs and development, are the ones in position to profit by these changes.

"All of the devices we manufacture, and all of our activities have to be planned intelligently, oftentimes as experiments. But if we sell an experiment to a customer it must be a success; otherwise, that customer buys no more experiments from us. In other words, we must have sufficient foresight to make certain that our experiments are successful ones."—A. W. Robertson.

Editor Wants Articles From Practical Men

Men who have anything to do with the performance, maintenance or supervision of finishing operations, and those who buy, sell, demonstrate, or test finishing materials, supplies, or equipment are invited to write and send in articles to Industrial Finishing. Short or long, with or without illustrations, handwritten or typed —they are all welcome, and whatever the Editor can use "as is" or in rewritten form, will be published and paid for. Articles about the application of finishing coats to leather, rubber, canvas and paper are particularly desired; also, metal cleaning and finishing, wood finishing, etc. Lists of other subjects will be furnished on request. This invitation is especially extended to practical men in the industry who have never written before.

Spray System Helps Printing Industry

The development of modern pressure spray equipment and a new quick-drying solvent medium to be sprayed onto freshly printed sheets, presents the printing industry with a process by which offsetting can be prevented and slip-sheeting eliminated. In other words, by spraying a mist of this solution onto wet printed stock as it moves from the press, each sheet of freshly printed paper can be stacked without danger of some of the wet ink transferring itself (offsetting) onto the back of the following sheet; and the placing of waxed sheets between wet printed sheets (slip-sheeting) to prevent offsetting is unnecessary.

The process, which appears to be the answer to one of the greatest problems of the printing industry also offers numerous other advantages which include speeding up of press time from 25% to 40%, permitting higher "lifts" or stacking of printed sheets and more rapid handling of the freshly printed material.

In operation, a microscopic film of the solution is misted by a special type of automatic airgun, over the printed sheets as they are run off the press. One gallon of solution has a covering capacity of from 60,000 to 200,000-sq.ft., depending on the type of ink and

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SUNOCO Spirits

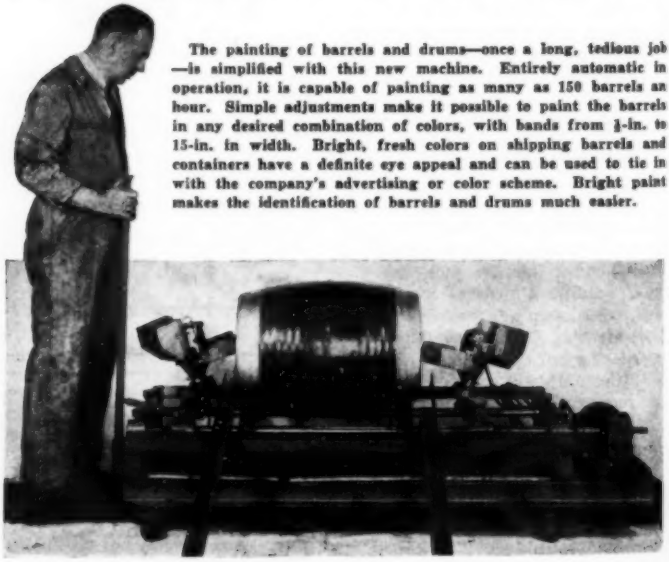
stock used. One automatic airgun will cover widths up to 42-in., and two airguns (the most ever required) will cover up to 84-in.

The solution, as it comes out of the airgun, is broken into a fine mist which covers the sheet with countless tiny particles and serves to separate the sheets so that the wet ink cannot touch the next sheet as it enters the delivery pile. This coating is so fine it can be detected only with the aid of a magnifying glass; it does not interfere with the drying of the ink nor affect the color in any way. It also appears to counteract the effect of the static electricity in the paper, which tend to draw the sheets together.

The solution is misted on the printed side only and has no effect on subsequent impressions as it is said the particles dissolve when touched with inks or varnish. Full press speeds are reported on all runs whether black, colors, metallic inks, or varnish, is used. The process may be used on either flat-bed or rotary type presses.

Colorful Design in Prize Package

THE packages in which goods are sent out and displayed to prospective buyers exert a merchandising value which may be favorable or unfavorable, depending upon how they compare with the packages of strongly competitive goods. At the Sixth Annual Packaging Exposition, held early this year in New York City, the Five-Star Anti-Freeze container of E. I. duPont DeNemours & Co.



The painting of barrels and drums—once a long, tedious job—is simplified with this new machine. Entirely automatic in operation, it is capable of painting as many as 150 barrels an hour. Simple adjustments make it possible to paint the barrels in any desired combination of colors, with bands from ½-in. to 15-in. in width. Bright, fresh colors on shipping barrels and containers have a definite eye appeal and can be used to tie in with the company's advertising or color scheme. Bright paint makes the identification of barrels and drums much easier.

An attractive 4-color job.

won the Irwin D. Wolf trophy as well as first award for the "most effective use of layout and/or decorative design."

The package is shown in the accompanying illustration. The colors of the can are blue with the lettering in white, and the duPont oval appears in red. The section in which the stars appear is white and the stars are reproduced in a gray tone.

Klinkenstein Made V. P. & G. M. of Maas & Waldstein Co.

On March 11, the Board of Directors of Maas & Waldstein Co., Inc., Newark, N. J. (manufacturers of lacquers and lacquer enamels) reelected as president Mr. M. A. Maas, who has held that position for 11 years. Mr. Gustave Klinkenstein was elected vice president and general manager; Mr. R. F. Magnus was elected treasurer, and Mr. B. D. Sanderson was reapppointed sales manager.

Gustave Klinkenstein, newly elected Vice President & General Manager of the Maas & Waldstein Co., Newark, N. J.

Mr. Klinkenstein, who now assumes the general management of the company, has been associated with it for over 20 years. He began work as a chemist, and later became chief chemist, and recently, director of research. Mr. Klinkenstein is thoroughly familiar with all phases of his company's work and is well known in the finishing field.

Mr. R. F. Magnus has been with the company for eight years. He is the son of the late Frederick S. Magnus, who was treasurer of Maas & Waldstein since 1914. He is fully conversant with the duties of his new office, as he worked in close cooperation with his father for many years.

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